

APPENDIX C

AERIAL DEFENSE

This appendix describes the use of machine guns in an air defense role, including the concept and two techniques for applying lead. Also discussed are the rules of engagement and firing positions.

C-1. PASSIVE AND ACTIVE MEASURES

A unit can take passive and active measures to defend itself against enemy air attack. Although volume fire is the key, there is a need to coordinate fires.

a. Passive measures are those that help the unit identify enemy aircraft before the aircraft locates the unit, make the unit difficult to locate, and make the unit less vulnerable when attacked. The unit must develop and practice camouflage as a passive measure. Concealment from the air must be considered when selecting routes, transportation means, or defensive positions. The use of air guards is important to give the unit time to react. Air guards should cover interlocking sectors of visible airspace.

b. Active measures for appropriate reactions to an air attack should be prescribed in unit SOPs. Each of the two techniques for applying lead is based on delivering a heavy volume of fire ahead of the target. The idea is to have every soldier in the unit engage the target. To achieve volume fire, soldiers armed with machine guns should fire at the cyclic rate.

c. If an aircraft is attacking his position, the soldier sees the aircraft in a head-on or diving view. To engage this aircraft, the soldier would fire slightly above the nose of the aircraft. Adjacent positions would see the aircraft in a crossing view. To engage the aircraft, these units would have to apply a proper lead. The method of applying lead depends on the technique used.

(1) *Football-Field Technique.* When engaging high-performance aircraft (those flying in excess of 200 mph), gunners should apply a one-football-field lead in front of the target and fire at the rapid rate until the target passes through the tracer stream. If the target is a low-performance aircraft, such as a helicopter, with a speed of 200 mph or less, gunners should apply half a football-field lead in front of the target, firing the cyclic rate. With all soldiers firing, a curtain of fire is formed because of slight differences in each soldier's estimate of the distance and lead.

(2) *Reference-Point Technique.* The unit leader designates terrain features as reference points. Upon spotting enemy aircraft, the leader commands, ENEMY AIR, REFERENCE POINT 1. At this time, the gunner points his weapon at reference point 1, elevates the weapon to about 45 degrees above the ground, and fires on command. Once he sights the target, he can make minor adjustments to align his fire on the target.

C-2. USE OF TRACERS

When planning for air defense, the leader should consider the use of tracers so that the gunner can observe the tracer stream and better align his fire on the target. A unit may engage an attacking aircraft without command. If an aircraft is not attacking, the unit may not fire on it unless ordered to do so.

C-3. FIRING POSITION

When firing the machine gun in an air defense role, the gunner should fire from a protected position, if possible. When not in a fighting position, he must position the weapon so that he has some type of support. In an emergency, another soldier can provide a firing support.